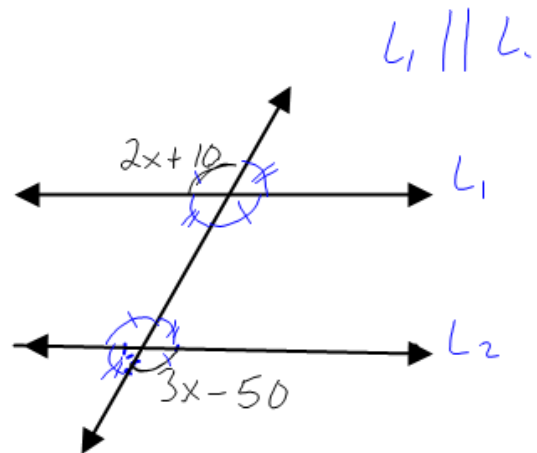


Solve for x:

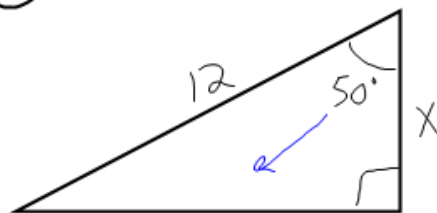
①



$$2x+10 = 3x-50$$

$$x = 60^\circ$$

③



$$\cos(50^\circ) = \frac{x}{12}$$

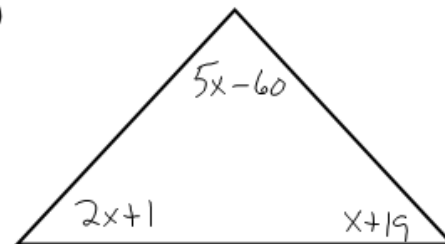
$$x = 12 \cos(50^\circ)$$

$$x \approx 7.7$$

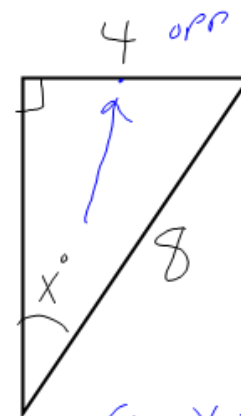
$$2x+1+5x-60+x+19 = 180$$

$$x = 27.5$$

②



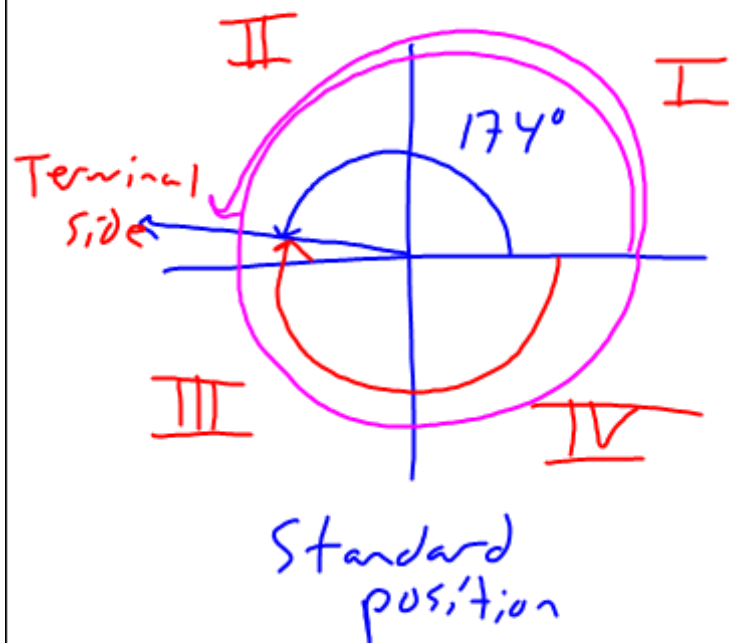
④



$$\sin x = \frac{4}{8}$$

$$x = \sin^{-1}\left(\frac{4}{8}\right)$$

$$x = 30^\circ$$



$$360 + 174 = 534^\circ$$

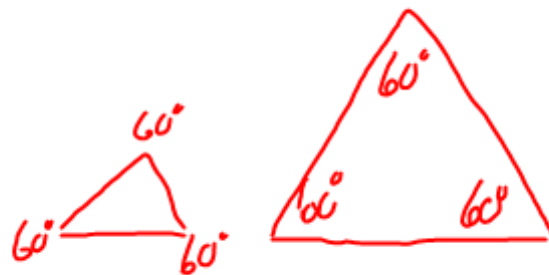
$$360 - 174 \Rightarrow 186^\circ$$

Sect. 1.1
#63

Similar

① All \angle 's are equal

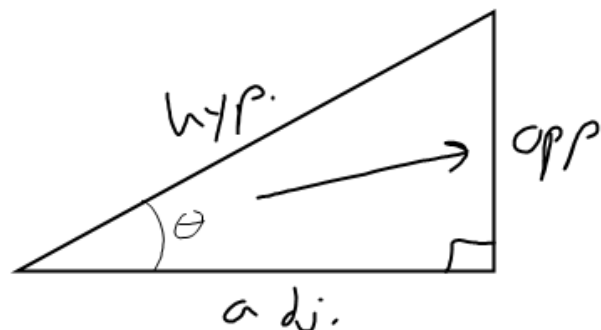
② all sides proportional



Sect. 1.2

#3, 5, 11, 21-23, 51-56 ($\frac{1}{2}$), 57, 58

Turn in 1.1 to basket



$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\text{csc } \theta = \frac{\text{hyp}}{\text{opp}}$$

cosecant

$$\sec \theta = \frac{\text{hyp}}{\text{adj.}}$$

secant

$$\cot \theta = \frac{\text{adj}}{\text{opp}}$$

tangent

Fractions

$$\frac{1}{\frac{1}{2}} \Rightarrow 1 \cdot \frac{2}{1} = 2$$

$$\frac{1}{\frac{\text{opp}}{\text{hyp}}} \Rightarrow 1 \cdot \frac{\text{hyp}}{\text{opp}}$$

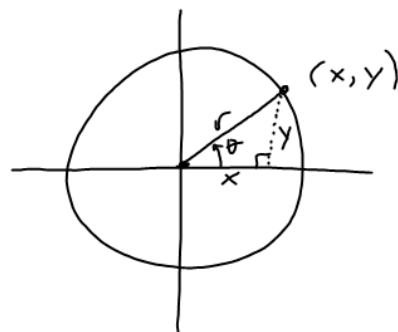
(reciprocal functions)

$$\text{csc } \theta = \frac{1}{\sin \theta}$$

$$\sec \theta = \frac{1}{\cos \theta}$$

$$\cot \theta = \frac{1}{\tan \theta}$$

ex. $\text{csc}(30^\circ) \Rightarrow \frac{1}{\sin(30)} = 2$



$$\sin \theta = \frac{y}{r}$$

$$\csc \theta = \frac{r}{y}$$

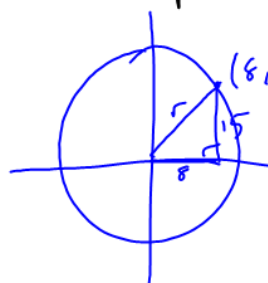
$$\cos \theta = \frac{x}{r}$$

$$\sec \theta = \frac{r}{x}$$

$$\tan \theta = \frac{y}{x}$$

$$\cot \theta = \frac{x}{y}$$

- ① Find value of the 6 trig functions for an angle in standard position with the terminal side passing through (8, 15)

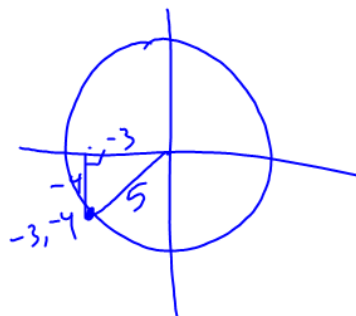


$$8^2 + 15^2 = r^2 \quad r = 17$$

$$\sin \theta = \frac{15}{17} \quad \cos \theta = \frac{8}{17} \quad \tan \theta = \frac{15}{8}$$

$$\csc \theta = \frac{17}{15} \quad \sec \theta = \frac{17}{8} \quad \cot \theta = \frac{8}{15}$$

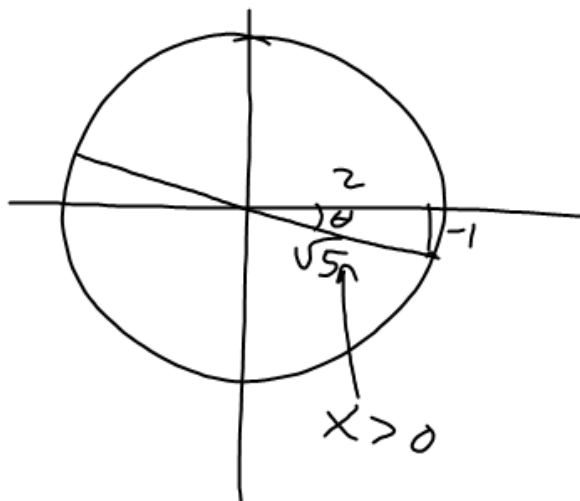
- ② Same?, use point (-3, -4)



$$\sin \theta = \frac{-4}{5} \quad \cos \theta = \frac{-3}{5} \quad \tan \theta = \frac{-4}{-3}$$

$$\csc \theta = -\frac{5}{4} \quad \sec \theta = -\frac{5}{3} \quad \cot \theta = \frac{3}{4}$$

③ Find 6 trig functions if terminal side defined by $x+2y=0, x>0$



line $y = -\frac{x}{2}$

$$\sin \theta = \frac{-1}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{-\sqrt{5}}{5}$$

$$\cos \theta = \frac{2}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$$

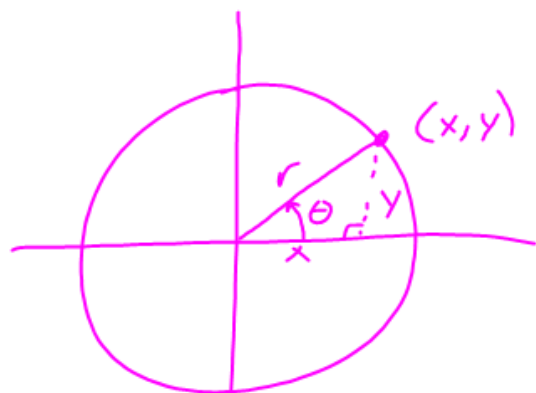
$$\tan \theta = \frac{-1}{2}$$

$$\csc \theta = \frac{\sqrt{5}}{-1}$$

$$\sec \theta = \frac{\sqrt{5}}{2}$$

$$\cot \theta = -2$$

$$\begin{aligned} &\sqrt{45} \\ &\sqrt{9} \cdot \sqrt{5} \\ &3\sqrt{5} \end{aligned}$$



$$\sin \theta = \frac{y}{r} \quad \cos \theta = \frac{x}{r} \quad \tan \theta = \frac{y}{x}$$

$$\csc \theta = \frac{r}{y} \quad \sec \theta = \frac{r}{x} \quad \cot \theta = \frac{x}{y}$$

$$\tan \theta = \frac{15}{8}$$

$$\theta = \tan^{-1}\left(\frac{15}{8}\right)$$

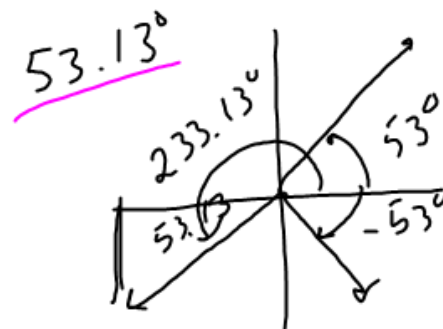
① Find the angle with the terminal side passing through the point (8, 15).

$$\approx 61.9^\circ$$

② passing through (-3, -4)

$$\theta = \tan^{-1}\left(\frac{-4}{-3}\right)$$

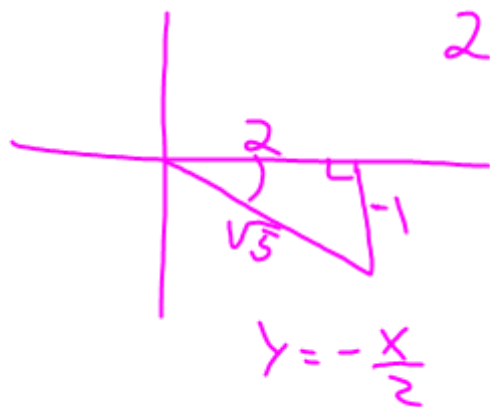
$$233.13^\circ$$



③ if terminal side defined by $x+2y=0$,
 $x > 0$

$$\frac{2}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$$

Rationalizing

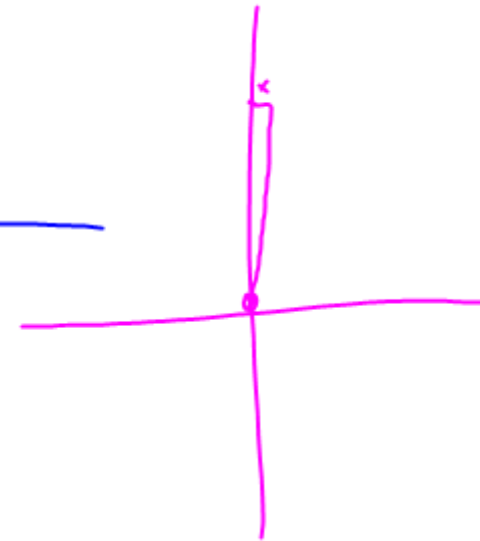
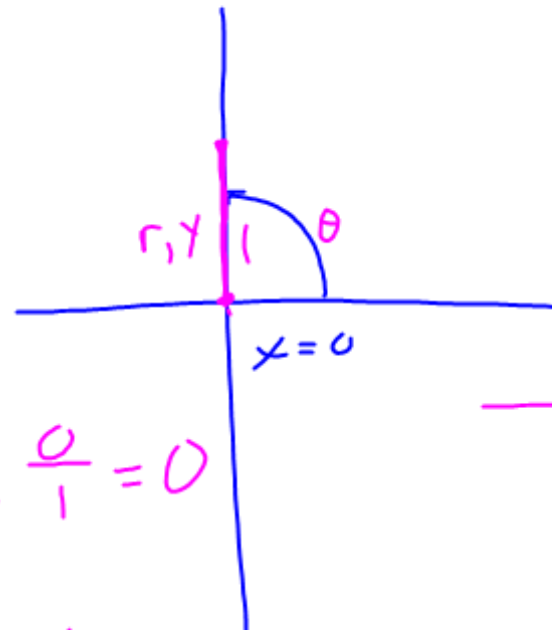
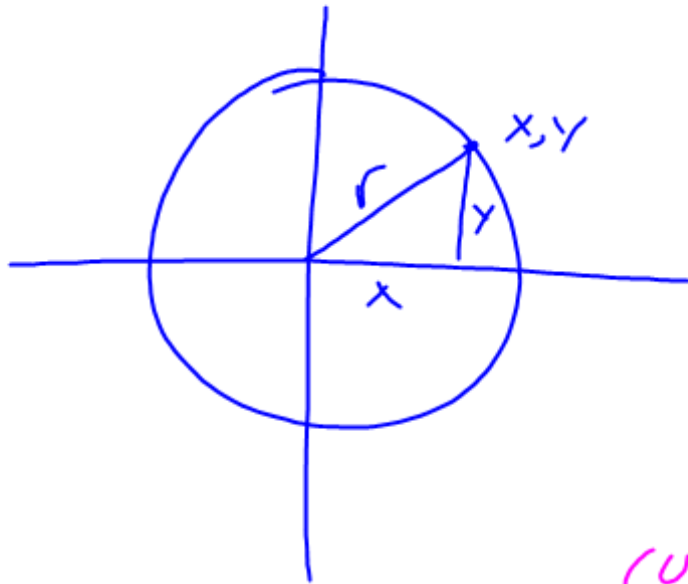


$$2^2 + (-1)^2 = h^2$$

$$h = \sqrt{5}$$

$$\cos \theta = \frac{2}{\sqrt{5}}$$

Quadrantal Angle - 90, 180, 270, 0, 360

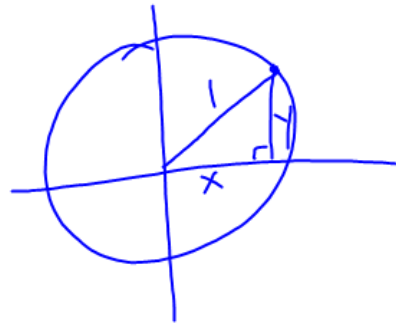


$$\cos \theta = \frac{x}{r} = \frac{0}{1} = 0$$

$$\sin \theta = \frac{y}{r} = \frac{1}{1} = 1$$

Angle	$\sin \theta$	$\cos \theta$	$\tan \theta$	$\csc \theta$	$\sec \theta$	$\cot \theta$	
0	0	1	0	undef.	1	undef.	$x=1$ $y=0$ $r=1$
90	1	0					$x=0$ $y=1$ $r=1$
180							$x=-1$ $y=0$ $r=1$
270							$x=0$ $y=-1$ $r=1$
360							$x=1$ $y=0$ $r=1$

$$\begin{aligned}\cos \theta &= x\text{-value} \\ \sin \theta &= y\text{-value} \\ r &= 1\end{aligned}$$



$$\begin{aligned}\cos \theta &= \frac{x}{r} \\ \sin \theta &= \frac{y}{r} \\ \tan \theta &= \frac{y}{x}\end{aligned}$$

HW

- Sect. 1.2 (what you did)
- Sect. 1.3 #5-9, 13, 15-26, 41, 47, 62
- Understand chart above